

FIELD NOTES ON THE MAMMALS OF SOUTH TINNEVELLY, SOUTH INDIA.

BY

C. G. WEBB-PEPLOE.

(*With one plate.*)

Tinnevelly is the most southerly district in the Madras Presidency. It is bounded on the east and south-east by the sea, on the west and south-west by the Western Ghats and Travancore State, and on the north by the plain of the Ramnad District. Through the centre of the district from west to east runs the Tamraparni River. There are a few lowish hills here and there in the plain but for the most part it is entirely level.

The following notes have been written from observations recorded during the past twenty years, chiefly in an area in the south of the district near the small village of Dohnavur (thirty miles from the sea to east and south, and two miles from the foot of the Western Ghats), and in the forest round an estate in the adjacent mountains, nine miles away, called Naraikkadu.

The country round Dohnavur is composed of comparatively unfertile sandy land covered with palmyra palms, interspersed with large channel-fed irrigation tanks and their attendant paddy-lands. The average rainfall is about 35 inches, and this decreases as you move eastwards.

The estate of Naraikkadu is set in evergreen forest at a height of 2500-3000 feet. On both sides of the valley mountains rise to well over 5000 feet. On the tablelands above are large areas of grass with the clearly-defined strobilanthes-bordered sholas, typical of the South Indian mountains. The slope of the hills is very steep, rising more or less straight up from the plains. The rainfall in this estate averages 115 inches a year, and it is probably considerably more on the mountain tops. Between these two biotopes is a fairly narrow strip of foothills where the cultivated lands give way to low grass-covered hills with single deciduous trees standing here and there, except in the water courses which are more thickly clad.

In the community centred in Dohnavur there are many keen students of natural history, and boys and girls in our schools grow up to love all wild life and to protect it. Some of them have become reliable observers, and to them I owe much in the compiling of the details of these notes.

PRIMATES.

1. **Lion-tailed Monkey.** *Macaca silenus.* Tam. *Arakkan.*

Found in evergreen forest, local, but not uncommon. Seen in troops of about twenty. They make a kind of subdued grunt, and also a sound like a loud pigeon's 'Coo'. Small babies (seen regularly in September) have a high-pitched squeal. These monkeys

move about the forest in a much more leisurely way than the Brown Monkey or the Nilgiri Langur. Though quite capable of leaping from tree to tree we have noticed that they prefer to climb slowly along the branches, often standing motionless rather than sitting down when they stop. They are more nervous and shy of man than the other two species, though both these will keep out of the way when the Lion-tailed Monkey is about. Once several were seen climbing slowly down one tree and walking along the ground to the next tree. This they climbed, investigated and came down to earth to repeat the process all in their usual deliberate way.

2. **Bonnet Macaque** *Macaca radiata*. Tam. *Kurangu*.

Common in evergreen forest and also found, semi-domesticated, by some Hindu temples and in certain well-wooded villages on the plains. They are seen at times on rocky upper mountain slopes and do not seem to object to the ground as much as Nos 1 and 3. They prefer trees, however, travelling in large parties, and are very active. They are inquisitive, and if there is something in the forest which they do not understand they will come closer and closer to find out about it. One mother was observed with *two* very small babies clinging to her. How they managed when older it is difficult to imagine. We once kept one of these monkeys as a pet, but their temper is unreliable, and they are not very satisfactory where children are about.

3. **Nilgiri Langur**. *Kasi johnii*. Tam. *Karu-mān̄thi*.

The commonest of the three monkeys in our evergreen forests, ranging from about 2000 feet to the tops of the mountains wherever there is *shola*. They travel in family parties of twenty to thirty. Their 'whooping' cry carries a long way and is often heard. They are bold, and quite often will run along the roof of a house and leap off onto a tree at the far end if it is the shortest route to their destination. Their acrobatic jumps are marvellous and they seldom seem to look before they leap. In spite of this only twice have we seen them fall to the ground, and they soon recovered and were up and away again. They have a strange way of rushing headlong through the trees and then suddenly they stop, sit down, pick a few leaves and begin to eat as if they had never been moving at all, reminding one of the children's game of 'steps'. A troop spends the night in trees near one of our houses and sometimes the angry 'barking' alarm note is heard which presumably means one of the larger cats is passing below. Once we went to investigate and by the light of a torch saw three monkeys on the topmost climbable branches of the tree, far above where they usually sleep. They made no noise however because of our torch, for I suppose they knew that the greater danger had passed. Quite small young have been seen both in June and September. On one occasion in June I found a very sick mother monkey on a large rock in the river bed. Its tiny baby lost its hold of the mother and slid half way down the rock to a ledge. The mother was too ill to reach it (she died next day), so I went very slowly towards it, so as not

unduly to disturb the large monkey, picked the baby up and took it home. It drank milk from a teaspoon and slept on its side, with its head bent back at a rightangle, in a small basket. Next day a large Nilgiri Langur was in a tree nearby, so we put the baby low down on a branch and very soon the big one came down and carried it away to safety.

About a hundred yards in front of one of our forest houses is a 'monkey bridge,' part of a regular road through the trees used by monkeys and the forest squirrels. It is in full view of our front verandah, and frequently they will pause for a rest on it. Occasionally two kinds will meet on the bridge. The Bonnet Monkey and Nilgiri Langur pass peacefully and go their ways, but both disappear when the Lion-tailed Monkey is in the vicinity.

4. Grey Langur. *Semnopithecus entellus*. Tam. *Vellai manthi*.

Fairly common along the foothills on rocky spurs that jut out into the plains and among the great rock faces that lie amidst scrub-jungle below the evergreen belt. A troop of forty to fifty was seen recently. When jumping they hold the tail straight out behind with a slight curve up at the end. Though they prefer rocks, unscalable to anything but themselves, they can take to trees if need be. Their cry is quite distinct from the other three monkeys, nearest to that of the Nilgiri Langur in tone.

5. Slender Loris. *Loris tardigradus*. Tam. *Thēvangu*.

Not uncommon, but seldom seen as it is nocturnal. Its cry is almost human, like a baby crying. It has been found in evergreen forest at 2500 feet, and one was found near sea-level in scrub-jungle on top of an *Acacia planifrons*. We have kept several as pets. They were fed chiefly on grasshoppers and other insects.

CATS.

6. Tiger. *Panthera tigris*. Tam. *Puli* (in books), *Kaduvāy* (colloquially).

Occasionally seen, and its pug-marks are often met with, from the foothills upwards. On June 13 last one was met on the main path below our forest house in broad daylight. It was neither angry nor afraid, and quietly faded into the jungle. But it no doubt prefers to move by night. It does very little damage to the local cattle, probably due to the abundance of sambar in the forests. After writing this last sentence, however, I hear that a tiger a few days ago killed one of the scrub cattle which are driven out daily to graze at the foothills. It was seen by one of our men just beside the forest boundary which adjoins a piece of land belonging to us at the foot of the mountains. Twice in the past thirty years a tiger has wandered out onto the plains, in one case it walked through our compound at night. On December 15, 1942, some men were sheltering from heavy rain in a small hut at the foot of the hills. A sambar doe came past pursued by two tiger cubs about 3 feet long. When the cubs saw the men, they stopped, which enabled the deer to escape. In front of the hut was a long sloping rock

on which the two cubs then lay down and washed themselves just like a domestic cat. They next began to play about, and one took a running jump to climb up a palmyra tree but fell off from a considerable height. It didn't, however, hurt itself. None of the men had a gun so the two cubs finally went off unharmed. A small child once met a tiger cub face to face in our forest estate; and on another occasion some of our children saw a mother and cubs playing. We have proved that if we do not harm them they do not harm us.

7. Leopard, *Panthera pardus*. Tam. *Sirutthai, Puli* (colloquially).

Though not often seen, its sawing cry has many times been heard from our houses in the forest. Coolies carrying supplies up from the plains have met it on the paths. On 8-3-43 in daylight a pair of half-grown cubs came within a few yards of the house, but soon melted into the forest when someone saw them and called others to come and look.

8. Jungle Cat, *Felis chaus*. Tam. *Kattu poonai*.

Common around and in our compound and in the foothills but not in evergreen jungle. It is very long in the leg and larger than a domestic cat. It brings forth its young on top of the Celotex 'ceiling' that we have in our houses. These have been found in the months of May and November. Four are the most that have been found at one time. It usually leaves the house just after dusk and returns before sunrise. A mother cat once tried to retrieve her young one that was sleeping on the floor beside a boy who was keeping it. She gave everyone a good fright but failed to get it back. Though it grew up a most attractive pet and was comparatively tame, it was always roused to fury by a sandalled-foot; for what reason I do not know. It would spit and strike sideways at it with its right front paw. This jungle kitten when nearly full-grown was taken to the forest and turned loose, as, in those days, we thought mistakenly that they lived there, but within a few weeks it found its way back to our compound to the one whose pet it was.

Another wild kitten that was very thin and sickly (perhaps it had lost its mother) gradually became friendly but never wholly lost its wild ways. One day it had a fight with a toy dog, and another time, objecting to a toy Koala Bear it removed it someway down the road. It finally became a nuisance and had to be transported to some foothills nearby, from which it did not return.

9. Leopard Cat, *Prionailurus bengalensis*.

I have never seen this and am not certain whether it is found in our forests or not.

10. Rusty Spotted Cat, *Prionailurus rubiginosa*.

This is considerably smaller than the Jungle Cat, and has clearer markings on the head. One frequented a house, set in low foothills and surrounded by scrub jungle, in which some of our children

live. It was often seen going in and out of the roof. It is a lonely place with no other houses near.

CIVETS.

11. **Large Malabar Civet.** *Moschothera civettina*.

This also is doubtful, though it is very likely to be found on the mountains as most of our fauna conform to that on the Travancore side.

12. **Small Indian Civet.** *Viverricula indica*. Tam. *Punuhu*.

It is common in the evergreen forest at 2500 feet and is found also in the foothills deciduous area. As it is nocturnal it is not often seen, but its droppings are found everywhere on rocks and forest paths. It is very partial to the fruit of *Caryota urens* (Kitul palm).

13. **Indian Palm Civet.** *Paradoxurus hermaphroditus*. Tam. *Mara Nāy*.

It lives in the roofs of houses on the plains and goes out at night. I saw one in the middle of the night recently, by the entrance to one of our pigeon cotes. The small door into the cote was shut but it was standing on the landing step used by the pigeons. Its long bushy tail hung straight down. I was able to get a very close view of it by the light of a torch. Only when we tried to touch it did it jump down and run away. Another, which had entered a pigeon-cote and killed some pigeons, was shot on the night of 24-11-46. It eats fruit and is very fond of banyan fruit. Men who hunt them find them by watching banyan trees in full fruit. It also takes small birds, though its main diet is vegetarian.

14. **Brown Palm Civet.** *Paradoxurus jerdoni*. Tam. *Mara Nāy*.

The forest equivalent of the last. It is more grizzled in colour than the plains' Palm Civet. On 24-9-41 one was seen on the branch of a tall forest tree. It allowed many of us to come and see it most clearly, as it lay resting its head on its two front paws stretched out along a horizontal branch. It looked down at us quite unafraid, remaining in this position for the best part of half an hour. Only when a man had climbed half way up the tree did it rise and move on. It swarmed up the perpendicular trunk like a cat, walked to the utmost extremity of a branch and slowly reached out to a branch in the next tree while holding on with its back legs to the first tree. It was later seen several times eating the fruit of *Fragraea obovata* in a ravine near one of our houses. This Palm Civet brings forth its young, usually two, in hollow trees. A young one of about two months old was found dead on a forest path on 1-10-46.

MUNGOUSES.

15. **Common Indian Mongoose.** *Herpestes edwardsii*. Tam. *Keeri pillai*.

Common everywhere in and around our compound and at the foothills. They live in holes in the ground under our firewood

store, and their young, usually two though sometimes as many as four, have been found in the roofs of houses and in empty boxes in our wood store. They come out about half an hour before dusk and are mostly nocturnal, though they are not infrequently seen in the daytime when the compound is quiet. On moonlight nights family parties have been seen out foraging, moving along in single file head to tail. They have a way of suddenly stopping, and sitting up on their hind legs to survey the scene, which is most engaging. We have often kept them as pets. They are very clean. They have a strange habit of trying to run in and out between your feet as you walk along, which makes progress rather slow! They eat rats and mice, as well as snakes and lizards, and sometimes will even catch a hare.

16. Long-tailed Mongoose. *Herpestes smithii*.

This has the tip of the tail jet black whereas the Common Mongoose has it ochre-coloured. I have only once seen it, in rocky foothills type of country, and its range extends up the hills into the evergreen belt.

17. Nilgiri Brown Mongoose. *Herpestes fuscus*.

Common in our evergreen forest at 2500'. Seen moving about in the daytime. It comes regularly to the kitchen after dark for bones from the rubbish pit. I had a splendid view of it one night in September 1945. It was lying in a tangle of low bushes beside a bare slope below the kitchen. A round hole showed its way in and out. As I was waiting in the moonlight it came out. I turned on the torch, at which it looked and sniffed for a moment, then, quite unperturbed, it went on foraging round on the open slope only a few feet from where I was standing. I watched it in this way for several minutes. It was of a very dark brown colour and as it moved in the light there appeared a dark chestnut tinge about it.

18. Stripe-necked Mongoose. *Herpestes vitticollis*.

One was killed by a dog on an estate about twenty miles north of us. The chestnut coat and black streaks on the neck make the identification easy. It is the largest of the four mongooses and its habitat is evergreen forest up to the tops of the mountains.

19. Indian Marten. *Charronia gwatkinsi*.

An animal which almost certainly must be this has several times been seen clearly in trees in the sholas at the top of the mountains at about 5000 feet.

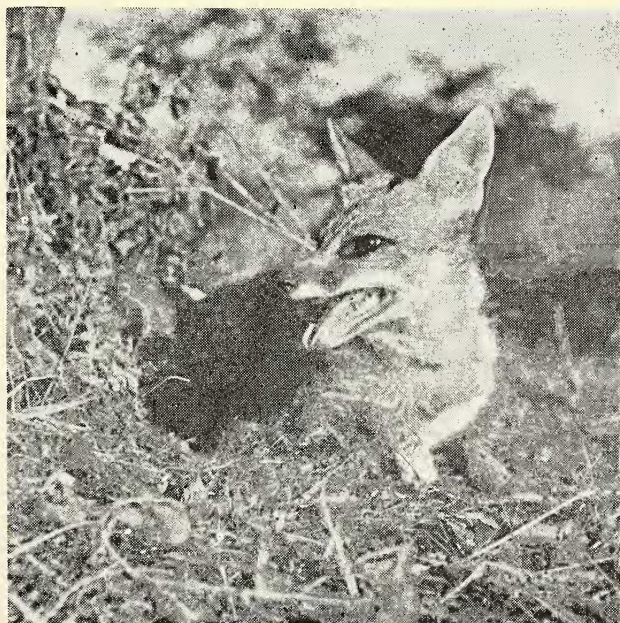
DOG TRIBE.

20. Asiatic Jackal. *Canis aureus* Tam. *Nari*.

Common throughout the plains and foothills. Lies up in cover during the day and roams about at night. In February 1946 a litter of five cubs was found on the top of the mud-wall bordering a betel-vine grove two miles north of our compound. One of our young men who went to see them heard the mother bark as she



1. Blackbuck (*Antilope cervicapra*) 4 months old. The colour line where later the black of the upper parts and the lighter colour of the lower parts divide is clearly seen.



2. Indian Fox (*Vulpes bengalensis.*)

ran off, but did not see her. The cubs were lying in a small depression on the mud bund up against the fence of plantain leaves which surrounds such groves in paddy land. The cubs were only eight days old. The mother carries them from place to place in her mouth if there is danger of their being disturbed, for the place in which they were then found was not where they had originally been born. One cub was brought back and fed on milk for about five weeks. Its eyes had opened and it was becoming very interesting, but a too early change in its diet disagreed with it and it died.

21. Indian Wild Dog. *Cuon alpinus*. Tam. *Sen Nāy*.

Fairly common both in deciduous and evergreen forest. On many occasions they have been seen by day. On 10-9-40 a large party of our boys went for a picnic to a river pool in the foothills. Just after mid-day one of them heard the sound of dogs quarrelling and barking. When he went to investigate he found a pack of Red Dog with a freshly killed sambar. Not having seen Red Dog before he at first mistook them for pariah dogs, but their uniform red colour and high-pitched barking made him realize what they were. When he clapped his hands they ran away, but, while he went to call others to come and see, they returned and when the other boys arrived there were twelve dogs busy eating. The sambar had fallen in a small pool in the riverbed. They had by this time eaten its stomach and one shoulder, but as many people were coming to look at them the dogs disappeared. At intervals during their feed they plunged into the water, apparently as much to cool themselves as to drink. Another of our keen naturalists has seen a mother dog teaching her young ones to strike at a sambar fawn which was standing at bay in a river pool.

22. Indian Fox. *Vulpes bengalensis*. Tam. *Kulla Nari*.

This is fairly common on low rocky hills that jut out into the plain as spurs of the main mountain chain, also on isolated hills of the same kind right out in the plains. It lives in holes in the rocks, is nocturnal and very difficult to catch. We sometimes see them in the headlights of the car on roads that run near these hills, for they come down by night into the cultivated fields and paddy land. They feed on lizards, frogs, crabs and such small fry. On March 8, 1943 a full-grown vixen was brought to us. Some gypsies had caught it, sewn up its eyelids and lips with horsehair and tied its feet, toe by toe, tightly with wire. They were hawking it for sale for medicine. We bought the poor suffering beast, untied it and kept it in peace till it died of its injuries. Two days later we obtained a two months old cub. It was most ferocious and for months would bite right through the skin if mishandled or frightened. Very gradually it responded to loving, careful treatment. It is now still with us, a most delightful pet. It shows a real affection for the one or two who specially look after it. If it hears their voice or sees them coming it will lie flat with its ears along its back uttering little cries of joy. It goes for a daily run, free, every morning. In the rainy weather when the grass in our compound

is long, to see it gracefully bounding over obstructions or running flat out for a short distance as if pursuing something, is a beautiful sight. When called to come back to its large cage it sometimes behaves like a spoilt child lying down and whining, refusing to obey. We removed six tiles from the floor of the cage (a small room about 8' x 8'), and it soon dug a burrow, but the trouble was that it burrowed right under the stone foundations and came out the other side and escaped. This was soon discovered and it was found again without difficulty, but we had to block up the burrow. It is fed on milk, plantains, rice, and occasionally meat in the form of chickens' entrails. Once or twice we gave it an egg which it picked up in its mouth without cracking the shell and carried underground. Later it made a hole at one end and licked all the contents out holding the shell with one paw. It loves to bask in the afternoon sun. It has remained in the best of condition as the accompanying photograph shows and now allows itself to be handled freely, though its first reaction to anything new is a nervousness which makes it run away to hide. It plays with our dogs and is quite unafraid of them. The story of certain foxes having a small 'horn' on the crown of the head under the skin is a complete myth. The gypsies know how widespread is this belief and trade on it, charging Rs. 2 for a tiny piece of bone said to be this 'horn'.

OTTERS.

23. **Clawless Otter.** *Amblyonyx cinerea*. Tam. *Neer Nāy* or *Meen Nāy*.

This lives in the stream which runs through our small estate. It is seen from time to time and a baby was once found at the end of April. It brings forth its young, usually two, in inaccessible holes in the rocks near the stream. Probably there is a pair in each of the perennial mountain streams. I saw a pair beside a pool quite near our house on the early morning of 9-10-46.

BEARS.

24. **Sloth Bear.** *Melursus ursinus*. Tam. *Karadi*.

Fairly common through both evergreen and deciduous forest, even coming down on to the plains where scrub jungle exists. It is occasionally met by those travelling on forest paths in the early morning or evening. Several men have been brought to our hospital after painful encounters with bears. One of us came across a half-grown one at about 4000 feet in October 1946.

HYAENAS.

25. **Striped Hyæna.** *Hyaena striata*. Tam. *Karuthai Puli*.

One was shot some years ago at the base of a 1600 foothill standing out in the plains a few miles south of us. It had been living in a cave among the rocks and making a nuisance of itself by killing the local sheep. Others have been seen in the forest twenty miles north of us, but it is not at all common in the neighbourhood.

INSECTIVORES.

26. South Indian Hedgehog. *Paraechinus micropus*. Tam. *Mulleli*.

This lives in the same low rocky hills as the Indian Fox. We have kept several as pets. They are nocturnal and sleep rolled up in a ball most of the day. They eat milk and rice (in captivity), and termites and insects. A mother, with two babies only two or three days old, was brought to us on 18-4-44. The babies had long white quills with many shorter dark brown ones in between. Their eyes had not opened. Unfortunately they died. The full grown one was let out in one of our market gardens, but not seen again.

27. Common Musk-Shrew. *Suncus* sp. Tam. *Moonjuru*.

Very common in and about our houses on the plains. Its unpleasant habit of dying inside closed drawers is well-known. I found one once at night chewing the toe of a live frog. The frog's screams attracted my attention. Its chief diet, however, seems to be insects.

BATS.

I cannot speak with certainty about the commonness or scarcity of the different Bats, but will list those I have identified. There are certainly more species in our countryside. The common name in Tamil for all bats is *Vavval*.

28. Flying-Fox. *Pteropus giganteus*.

There used to be a colony of these very large bats living in a cocoanut grove beside a river near the foothills, but owing to persecution by man, they disappeared. No doubt they are found in suitable places in our area.

29. Short-nosed Fruit Bat. *Cynopterus sphinx*.

This is probably the common small fruit-bat which comes in large numbers to feed on the Margosa (*Azadirachta indica*) fruit from June to August. Some have been seen spending the day in dead Palmyra leaves still hanging on the tree, others in the roofs of houses.

30. Ceylon Fruit-Bat. *Roussettus leschenaulti*.

One was found dead, answering in every detail to the description in Ceylon Mammals p. 68. Quite possibly this is fairly common too.

31. Indian Vampire. *Lyroderma lyra*.

Several have been found dead. This bat undoubtedly is responsible for the remains of small birds found in the morning on our verandahs—a wing and some feathers. How they catch these small birds, usually warblers, I do not know. A baby was found on 16-3-45—a hideous naked miniature with a huge head and ears. One kept for a few days ate a pipistrelle that was put in the same cage at night—only the wings were left uneaten. This is fairly common.

32. Sykes's Leaf-nosed Bat. *Hipposideros speoris*.

Spends the day in dark roofs of houses. A mother was found on 13-1-44 with a new-born naked baby which she kept licking as the baby clung to her. This also appears to be fairly common.

33. Ceylon Bi-coloured Leaf-nosed Bat. *Hipposideros atratus*.

Probably pretty common. One caught on 8-6-44 was feeding on a small grasshopper.

34. Common Yellow Bat. *Scotophilus kuhli*.

One was found in daylight on 8-7-44 being attacked by crows. It was rescued and kept all day. In the evening it flew away safely.

35. Indian Pipistrelle. *Pipistrellus abramus*. Tam. *Turinjl*.

Probably common, often found sheltering behind door and window shutters or in Venetian blinds in our houses during the day.

RODENTIA.

36. Palm Squirrel. *Funambulus palmarum* Tam. *Anil*.

Common all over the plains and foothills. It eats anything and does considerable damage. When young it makes a very interesting pet, but when fully grown they are usually a pest. Its nests—balls of grass—are found in trees and on beams and in the roofs of houses.

37. Dusky Squirrel. *Funambulus sublineatus*.

This is like a very dark plains squirrel. It is found up to the summit of the mountains all over the evergreen forest area. It has a much more high-pitched note than its plains cousin, and I have often mistaken it for a bird's note. In sunlight there is a ruddy glow to its back. I have usually seen it not far from the ground on trees. It has a strange habit of foraging with a slowly travelling party of babblers such as Quaker Babblers; wherever they go it goes, low down in the undergrowth.

38. Large Indian Squirrel. *Ratufa maxima*. Tam. *Kāttanil* or *Mara Anil*.

Common in evergreen forest, a most beautiful animal. A typical nest at the top of a tall tree was made of small sticks inside, then twigs cut off with its teeth from the tree, with the leaves nicely fitted together. The entrance hole at the side was 4 inches in diameter leading to a 9 inches round chamber inside. The complete nest was 1½ feet in diameter and looked like a ball of dead leaves. On 4-9-46 a mother and four babies (about a quarter her size but with the same colouring) were seen playing on a rock in forest. They remained there about a quarter of an hour.

39. **Common Grey Flying Squirrel.** *Petaurista philippensis*. Tam. *Paravaikkeeri*.

Very seldom seen, but it lives in the forest round the estate, spending the day in hollow trees and coming out at dusk. It has been found when large trees were felled to build a house, and seen on one or two other occasions. A dead one was found at about 2500' on 12-2-47.

40. **South Indian Gerbil.** *Tatera indica cuvieri*. Tam. *Velleli*.

They are about 7 inches long with a tail of the same length. The hind foot measures nearly 2 inches from hock to claw, and so these 'Kangaroo-rats' can jump great distances. They are a beautiful fawn colour above and pure white below. They have their burrows under cactus hedges or in any untrodden waste ground that has a little cover. There are many runways and two or three ways out. The nest chamber is lined with grass. Upto six babies have been found. They eat grass-seed and grain of all kinds and store some underground. When eating this they leave the refuse inside the hole. They make charming pets and are scrupulously clean. One we kept as a pet ate grasshoppers and cockroaches, the latter with especial relish. Many of the local people eat them.

41. **Bandicoot.** *Bandicota malabarica*. Tam. *Peruchāli*.

By far the largest of the rats, being a foot long with a tail of 10 inches. It lives underground among buildings, and its runways come up through the floor of storehouses. It is very destructive to stored paddy and other grains. They used to live under an old granary in our compound and are sometimes seen.

42. **Southern Mole-rat.** *Bandicota kok* Tam. *Urumumeli* (colloquially *Virumeli*).

This is a heavily-built rat about 9 inches long with a tail of 6½-7 inches. It is coarse-haired, the hairs being brown, rufous and grey mixed, below it is a paler grey. It has its hole in the bunds of rice fields or at the edge of gardens. Though the runways are more than in the last species, there is only one entrance. When the rat is at home the door is blocked with earth, and often there are several other earth blocks at intervals along the main path. The nest chamber is lined with grass. Only two young have been found at a time. There are sometimes two separate store-rooms, one for present use and one for the future. Large quantities of paddy, whole brinjals and 'lady's fingers' have been found in these store rooms. The chaff and uneaten refuse is carried away and left in a heap some yards from the entrance to the hole, and this guides people who hunt for them, for they too are eaten. The burrows may go as deep as 1½-2 feet underground. Sometimes a side burrow will lead to a tapioca plant nearby and the root is eaten little by little *in situ*. Many of the side burrows lead nowhere and seem to be 'blinds'. This rat makes a peculiar grunting noise when

disturbed or caught, from which comes the Tamil name meaning 'grunting rat'.

43. Common Indian Rat. *Rattus rattus zeroughtoni*. Tam. *Mara Yeli*.

This measures about 8 inches with a tail the same length or a little longer. It is brown above with some coarse hairs, and almost pure white below. It nests and lives in the crown of cocoanut palms and is probably common wherever there are groves of these trees. It has two young at a time. It descends at night and feeds on grains and vegetables. Some people eat this rat.

44. Common House-Rat. *Rattus rattus rufescens*. Tam. *Veetleli*.

This is well-known and too common. It is about the same size as the last but grey below. It nests in the roofs of houses both tiled and thatched, and comes down to wander about at night. It eats anything and everything. It does great damage to clothes and is altogether a nuisance. Because of its unclean habits this species is not usually eaten.

45. Common House Mouse. *Mus musculus*. Tam. *Veettu Sundeli*.

Length 3 inches with tail as long or longer. Colour above brown, below grey. Nests of this mouse are commonly found in rice-sacks or sacks containing some other grain or cotton seed. It has up to eight young at a time. I kept one for a night in a glass jar. It much enjoyed four flying termites. It sat on its hind quarters and held the termite in its front paws, nibbling away till one was finished, then it caught another and carried on with evident relish. Its usual diet no doubt is small seeds and crumbs of anything edible. When I put some cotton wool into the jar it pulled it to bits and made a kind of roof for itself under which it lay.

46. Indian Field Mouse. *Mus booduga*. Tam. *Kattu Sundeli*.

This is slightly larger than the last but its tail is shorter than the head and body. In colour it is sandy-brown above and white below. It lives in holes in cultivated land or in stack manure pits after the heat has gone out of the decaying matter. Its holes have many passages and several ways in and out. It never burrows deep like the Mole-rat. It has a nest chamber lined with grass, and a separate store-room. It has many young at a time. It eats small grains, grass-seed, and nibbles such things as brinjals growing in our market gardens.

47. Brown Spiny Mouse. *Mus platythrix*.

It is larger than the Field Mouse and has a more 'ratty' face and coarser fur. A female was caught and the next day gave birth to several young, but unfortunately the mother and young soon died.

48. Long-tailed Tree Mouse. *Vandelluria oleracea*. Tam. *Mara Sundeli*.

It is a beautiful chestnut colour above and pure white below. It measures $3\frac{1}{2}$ inches and the tail is up to $4\frac{1}{2}$ inches, noticeably

long. This mouse is an opportunist in the matter of nesting sites. In the roofs of houses or the crown of cocoanut palms, in a bunch of unripe plantain fruit, or a fold in a hanging sack, and even in an empty beehive nests have been found made of grass. Four young seem the usual number. It feeds on grass seeds and the smaller food grains.

All these mice make most engaging pets. A small cage with a section of bamboo and a little cotton wool in it for a dormitory, a revolving tread-wheel, which they seem to love, for exercise, and grass seed for food will keep them quite happy. We have often kept them for our children's interest, and they become very friendly.

9. Indian Bush-Rat. *Golunda ellioti*. Tam. *Kumman*.

This is probably the short-tailed rat which lives in the grass from the foothills upwards. Its runways are found everywhere on ground level among the grass tufts. It has been seen on several occasions but never caught, so I have not been able to examine it. Its nest with young was found once in the foothills, a ball of grass low down in a bush in scrub jungle, but I was only told of it some-time afterwards.

Besides these rats and mice there are two other species found in the mountains:

A rat whose Tamil name is *Kalleli* or Rock Rat. This measures about 8 inches with a longer tail; it is sandy-brown above with occasional black spiny hairs, and pure white below. It is very common all up the mountain side, living among the rocks in forested jungle. Its nests have been found in our forest houses—in an empty water pot or in the corner of a room behind a cupboard after the house had been unoccupied for some months. It also nests in trees in the forest, building a ball of dead leaves or grass. It is found far away from human habitation. I suppose it may possibly be the same as No. 43 above, having adapted itself to forest life.

A mouse is found in the cleared parts of the estate, which covers the entrance to its hole with small pebbles when at home. I have found these holes in the ground beside a path, and one mouse made its home on the verandah of a house where the lime cement at the base of the house wall had worn away. It came out after dark and used sometimes to go through the house, but more often straight off the front verandah into the forest, which is but a few feet from the house. The Tamil name for this is *Kattarikkan*. This may be a variety of the Indian Field Mouse, but it does not seem to be the same in its habits, for No. 46 does not in my experience ever cover its hole with stones, but that may be only through lack of suitable material.

50. Black-naped Hare. *Lepus nigricollis*. Tam. *Musal* or *Muyal*.

Very common at the foothills and in our compound, especially in the outlying market gardens where it does some damage to new shoots of certain grain crops. It is hunted in the country round with dogs, and many take refuge on our land where they seem to know they are safe and become comparatively tame. They are

sometimes seen by day but usually because they have been disturbed. We have often reared them as pets. Baby hares have been found in all the first four months of the year. When born they have a small patch of white hairs towards the back of the crown, which slowly disappears until at the end of six months it is entirely replaced by ordinary hair. Two is the usual number at a birth.

51. **Porcupine.** *Hystrix leucura*. Tam. *Mullampandri*.

Common in the forest round our gardens where it has its burrow among rocks. It makes great havoc among the growing pine-apples and also digs up sweet potato. Its quills are found all over the forest, but, being nocturnal, it is not often seen.

ELEPHANTS.

52. **Indian Elephant.** *Elephas maximus*. Tam. *Yānai*.

Quite often heard or seen on the tablelands at the head of the valley in which our estate lies. It moves across from the west to the southern sholas to feed on *Ochlandra* sp. in September just before the N.E. monsoon begins. Most of our records are between September and January. There are well-worn paths made by the elephants both on the grassy mountain sides and in the sholas. They seem to object to innovations, for the stones of a cairn built to mark the junction of several paths were scattered into the surrounding jungle by them, and their visit of inspection after rain to a newly mended anicut did not at all improve the earth bund. A mother elephant with a baby was reported to be a few miles north near a larger forest anicut in September 1944.

RUMINANTS.

53. **Indian Bison.** *Bos gaurus*. Tam. *Kāttu Mādu*.

This also inhabits the same country as the elephant, but is very rarely seen, though its tracks are not uncommon. A horn was found some years ago near the source of our valley river.

54. **Nilgiri Tahr.** *Hemitragus hylocrius*. Tam. *Varai Ādu*.

A very common animal on all the high grass-slopes to the south of our valley. Precipitous rock faces daunt it not at all. We have often seen it wandering across very steep precipices. It is visible on the upper open slopes from our houses in the valley. Quite small young ones have been observed in September. A herd of about forty was seen on 2-4-46. It definitely seems to be on the increase.

55. **Sambar.** *Rusa unicolor*. Tam. *Milā*.

Also very common and constantly met from the foothills to the highest summits. They are not very shy, and certainly on the tops of the mountains, graze by day as well as by night. Twice recently we have met one grazing about midday well out in the grass from the shola edge. In one case the stag saw us and watched